

BUDGET DEFICITS AND CURRENT ACCOUNT DISEQUILIBRIUM IN NIGERIA: AN ECONOMETRIC INVESTIGATION

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ABSTRACT: *This study on budget deficits and current account disequilibrium in Nigeria seeks to investigate the effects of budget deficits on current account in Nigeria. Data on this study were sourced from the publication of CBN and NBS. The study discovered that apart from inflation which caused a reduction in the current account balance of Nigeria, the rest of the variables particularly budget deficits stimulates an increase in Nigeria's current account. The study was conducted using the techniques of co-integration and error correction mechanism. However, some policy recommendations have been made believing that government through these recommendations will consider it appropriate for the growth of the Nigerian economy and curtail unnecessary fluctuations in her balance of payments.*

KEYWORD: Budget Deficits, Current Account Balance, Disequilibrium, Macroeconomic Policy, Macroeconomic Management

JEL: F41

INTRODUCTION

The major problem of macroeconomic management in the third world countries including Nigeria has been the persistence of budget deficit and current account disequilibrium, which normally leads to the overall balance of payments disequilibrium. In these developing economies, the phenomenon is characterized by undue hardship, decline in external reserves, external debts problems, low per-capita income, inflation, corruption to mention but a few.

Consequently, the major preoccupation of macro-economic policy makers is the maintenance of healthy and sustainable balance of payments stability.

Budget deficit which is an excess of expenditure over revenue has some macroeconomic links with balance of payments deficit which is the excess of the values of the credit items in the current account. It should be noted that this continuous disequilibrium over the years might have been caused by some economic and political factors.

The movement of budget deficit and current account balance in the 1960's show case frequent divergence between the early days of independence, Nigerian government in its fiscal operations recorded to a large extent frequent budget surplus from 1960-1969. In the same vein, the current account balance in this period shows more of deficit (CBN, 1995). The first occurrence of twin deficit in Nigeria's fiscal operations and current account balance was in 1970 where budget deficit was 8.6% of GDP and the current account deficit was 0.9% of GDP. Also in 1972 deficit occurred in both country's fiscal operation and current account position. Co – existence of surplus was recorded in the fiscal balance and current account balance in 1973 and 1974, this period mark the time of windfall revenue in the sales of oil in the international market (CBN, 1997).

The twin deficit reoccurred in Nigerian economy between 1981-1983 following several government finances that increased its expenditure and also the volatility of oil price in the international market. Several government policy measures in the post SAP period also resulted to the occurrence of deficit in the budget and current account balance from 1986-1989. Co-movement of the budget deficit and current account deficits are also visible in the periods of 1992-1994.

The period 1997 and 1998 also show a simultaneous deficits in the country's fiscal and current account balance where the budget deficit and current account deficit averaged 5.3 and 2.8% of GDP respectively.

The years of 1998-2000 were also period of deficits in the country's fiscal operations and current account (A.E.O, 2008). The size of this fiscal and current account imbalance has been a concern to policy makers and investors coupled with the fact that there has been only 15 cases of fiscal surplus and 27 cases of current account surplus in 48 years (1960-2008).

Imbalance in Nigeria's current account position was mostly attributed to fluctuation in oil prices. Frequent current account deficits reflect the expansion in domestic absorption that could not be satisfied by domestic supply. Fiscal deficit has been the major causes of various macroeconomic imbalances in Nigeria such as high inflation rate, current account deficit, high indebted economy and slow economic growth. Therefore, government efforts to reduce the size of budget deficit and current account deficit in the country, had not yielded the desired results, hence the major objective of this study is to examine the relationship between budget deficit, current account balance and its impact on economic growth in Nigeria.

THEORETICAL Framework and Literature Review

Theoretical Framework

The classical school of thought and the Keynesians view budget and balance of payments in different perspective. In order to ensure effective analysis, budgeting and balance of payments under fixed exchange rate and also budgeting, balance of payments and income determination would be analyzed to enhance the understanding of the problem of study.

Government Budget and Income Determination

The government budget is a financial statement of the government proposed expenditure and expected revenue during a particular period usually one year. The budget can be in surplus or in deficit. The government revenue exceeding total expenditure is known as surplus budget.

So the budget surplus (BS) analytically is:

$$BS = T - G - R \quad (2.1)$$

Where T = taxes: G = Government purchases and R = transfer payments. Budget deficit (BD) which is a negative budget surplus and an excess of expenditure over revenue is given as:

$$BD = BS = G + R - T \quad (2.2)$$

Given income tax, budget surplus becomes

$$BS = (T_0 + T_1 Y) - G - R \quad (2.3)$$

Where: $T_0 + T_1 Y$ represent income tax function. What is the likely effect of a change in government budget on national income? If we consider the budget as B we simple have:

$$B = P[G + R - (T_0 + (T_1 Y))] \quad (2.4)$$

This allows us to write the reduced form equation as:

$$Y = \frac{1}{1-b} (a + co + B) \quad (2.5)$$

1-b

Where: B is a measure of the government's budget on income. An increase in B can be accompanied by an increase in government expenditure or a decrease in taxes. In this case, we can use the budget to attain a targeted level of income with the existing level of income and expenditure, and by increasing the deficits; the government can raise the growth rates of the economy to a targeted income level. This is known as expansionary fiscal policy.

On the other hand, if the level of expenditure is above the targeted income, then aggregate demand will be too high. The correct policy will be for the government to run a surplus budget. This is known as contractionary fiscal policy.

Balance of Payments and Income Determination

The classical school of thought in their simple analysis always emphasize on equilibrium state. They argued that if a country is faced with deficits (budget and balance of payments deficits) it is dangerous to the growth and development of that country. So they stressed that every economy should strive at equilibrium. The Keynesian on the other hand stressed that budget and balance of payments deficits are not the ultimate. They emphasized that an economy can be in deficits whereas the standard of living will be high (e.g USA). They also argued that loans can be used to install infrastructures that will be beneficial to the economy; in that case, the return on investment will be used to finance these deficits. Furthermore, in an economy where deficits exist (both in the market and balance of payments) the people will be faced with hardship like in the case of Nigeria.

Niang (1996) stressed that the absorption approaches to budgeting and balance of payments focuses on the effects of the expenditure (consumption and investment) on the budget and balance of payments deficits is determined between the internal demand and supply. In the case of monetary approach, it is stressed that balance of payments accords great importance to monetary variables in determining the disequilibrium. In its simplest version, the overall balance of payments is equal to the different money supply and domestic credits.

Monetary Approach to Budget and Balance of Payments

The monetary approach to budget and balance of payments emphasize the relationship between budget, balance of payments and exchange rate. It also emphasizes the divergence between the supply of and demand for money. According to the monetarists, disequilibrium

in the balance of payments is caused by the gap between the demand for and supply of money. The excess of money supply over the demand for money will lead to budget deficit and balance of payments deficit which may be financed by reverse outflow. An excess of demand is indicated by a substantial rise in international reserves.

Absorption Approach to Budget and Balance of Payments

The absorption approach to budgeting and balance of payments suggests the need to reduce absorption (curtail expenditure) in order to improve the budget and balance of payments positions. In most developing countries, this reduction in expenditure leads to import compression and decline in the expenditure on health, education and infrastructure, thereby leading to a dislocation of the domestic production structure.

Ironically, this is the path of adjustment preferred by the International Monetary Fund (IMF) and World Bank although a more reasonable alternative increase in productivity would have been recommended so that income is brought into the system with absorption or even surpass absorption levels.

LITERATURE REVIEW

In a study conducted by Olisadebe, (1995), it was identified that the deficit budget problem in Nigeria is due to the poor performance of the non oil sector and the non oil exports. The fluctuation in crude oil prices, lack of meaningful participation in the provision of international services relating to shipping, insurance and tourism by Nigerians as well as the low level of income from direct investment abroad by Nigerians.

In their study, Ajayi and Ojo (1991) observed that under a flexible exchange rate regime, budget deficit does not pose any problem of adjustment provided that there are no restrictions on the international movement of goods. The rate fluctuates freely to reflect supply and demand conditions. The study further identified flexible exchange rate policy that may result in a country losing control over its domestic economic policy. They noted that the World Bank at Bretton Woods in 1994 opted for a system of adjustable pegged exchange rate.

In two separate studies conducted by Nnanna and Dogo (1998), Nanna and Dogo observed that instead of transferring the economy of the nation from an essentially producer of primary products to an industrial one with a view to increasing the value added, and also creating more job opportunities, Structural Adjustment Programme (SAP) dealt more with manipulating the exchange rate value of the Naira, thereby causing inflation, balance of payments deficits and current account disequilibrium. This is the much reason why the post SAP balance of payments position was nothing to talk about as it continuously read negatives.

Also Asogu (1998) pointed out that relationship that exists between budget deficits and current account disequilibrium can be traced to the fact that prices of number of imported items increases as a result of foreign exchange.

Krugman (1997) in his study maintained that current account section of the balance of payments in a dual exchange rate system is remarkably sandwich in such a system and

official rate is applicable to current account transaction while capital account transaction takes place at a freely determined rate that generally differs from the official rate.

According to Obaseki (1991), a viable balance of payments is a current account position which shows persistent surpluses at GID levels that will not elicit retaliatory trade restrictions from trading partners or which deficits can be financed on a sustainable net capital movement on the terms and conditions which are compactable with reasonable economic growth and development, macro-economic stability, as well as with the enhancement of capacity to service the external debts.

According to Kreinine (1967), the absorption approach to adjustment of budgets and balance of payments imbalance prescribes the conditions which devaluation may improve the trade balance or current account. The condition is usually stated as Marshall Learner condition. It must be noted that in the absorption approach, if elasticity is less than unity, then we have elastic situation, whereas if elasticity is greater than unity, it signifies fairly elasticity. A price elasticity greater than unity means that a small change in price leads to more than proportionate change in quantity demanded or supplied. Therefore, Marshall Learner condition states that depreciation or outright devaluation will lead to improvement in a country's trade balance if the sum of the absolute value of the demand and supply elasticity's for the country's exports and imports is greater than unity.

In a study conducted by the Nissanke and Ayeetey (1998), it was noticed that most developing countries especially the sub-Saharan Africa of which Nigeria is inclusive face a medley and unrestrained demand for imports thereby having a very low absorptive capacity and being vulnerable to shocks from abroad. The right policy as they suggest will be to float the current account transaction rate and capital account/exchange rate control or at worse allow the rate to float. A stable system of exchange rate however would be more dependent on macroeconomic policies than on the formal exchange rate regime which they have put in place.

They are some economists who have used the purchasing power parity (PPP) approach formally to adduce evidence on the extent of devaluation of the naira. However, in their various studies, efforts have been made to address the issue of the contribution of exchange rate policies to budget, balance of payment and some major macro economic variables in Nigeria. This literature among every other thing has shown the existence of a link between exchange rate, budget, current account and the overall balance of payments. It is obvious from the various literature reviewed that there is no conscious effort made on the effectiveness of exchange rate policies in maintaining budget and BOP stability. We have fairly stable exchange rate but this exchange rates does not conform with the main objective of exchange rate policy in Nigeria such as inflation control, maintaining a stable budget and balance of payments and most importantly to preserve the value of the domestic currency (Naira), since the naira has been said to be undervalued, Obaseki (1991) and Ojo (1990)

Empirically Egwaikhide (1997) analyses the effect of budget deficit on the current account balance in Nigeria using behavioural equation drawing on times series data covering (1973-1997). A simple estimation method of ordinary least square (OLS) was explored. Policy simulation exercise was considered in his study. The findings suggest that the budget adjustment is needed to raise real investment in the economy since it is directly linked to the performance of real income. The result of simulation experiment stressed that budget deficit occasioned by increased in expenditure predicated the detritions of the current account

balance. A similar macro economy frame work was adopted by Tchokote (2005) to examine the effect of budget deficit on current account balances in Cameroon for the period 1965-2000. In the study, two stage least squares was use to capture simultaneous equation bias which may arise from ordinary least squares method. It was found that concurrent fiscal deficit and negative current account balance have triggered a series of macro economic imbalances in Cameroon.

Korus (2006) investigates the effect of fiscal deficit on external sector performance in Sierra Leone using annual data from 1971-2005. The study utilized three stages least squares methodology to estimates simultaneously money supply, price level, real exchange rate and overall balance of payments. Counterfactual policy simulation was later performed but the direction of causality was not explicitly identified in the study. Evidence shows that fiscal restraint improves in the external sector of Sierra Leone by reducing money supply and the price level. The result also point to the need for sustained reduction in the budget deficit of Sierra Leone as this help in achieving monetary restraint and low price levels which has real exchange rate depreciation and improvement in the balance of payments as ultimate external sector benefits.

Accordingly, Ali (2006) explores the inter linkage between budget deficit and trade deficit in Lebanon by using granger causality and unrestricted error correction model. Bound test co integration was adopted to establish the long run relationship between budget and trade deficits. The study employs Jarque-Bera test to check the normality of the error terms. Empirical findings of the study shows that budget deficit and trade deficit have a positive significant relationship in the long run. The direction of causality runs from the trade deficit to budget deficit.

Tahir et al (2007) investigate the twin deficits hypothesis in Pakistan using quarterly time series data for period 1974-2005. Co-integration test and granger causality test were conducted to determine the long run relationship and the direction of relationship between budget deficits and current account balance. Error correction model was also used to capture the short run disequilibrium situation among the variables. Co integration test indicated the existence of a long run relationship between the variables. While Granger causality test shows that bi directional causality runs between budget deficit and current account balance in Pakistan.

Also, Ezeabasili and Mojekwu (2011) investigated the effect of fiscal deficit on nominal interest rate in Nigeria. Co integration techniques and structural stability were adopted for the study. Empirical evidence obtained shows that the coefficient of fiscal deficit with respect to income is 0.114, an indication that large deficit causes higher interest rate. The study recommended that government should consider the option of bond financing of budget deficit as an alternative to monetary financing. Furthermore, to consolidate on the previous studies, Oladipo and Akinbola (2011) investigated the nature and direction of causality among the two variables. This was with a view to provide empirical evidence on budget deficit operation in stimulating economic growth through inflation in Nigeria. The result revealed that there was no causal relationship from inflation to budget deficit, while the causal relationships exist from budget deficit to inflation in Nigeria. More so, the result showed that budget deficit affects inflation directly and indirectly through fluctuations in exchange rate in the Nigeria economy.

Ratha (2012) examines the relationship between budget deficits in India using monthly data over the period 1998-2009 and bound testing approach to co integration. The lag structures of the autoregressive distributed lag are selected based on Akaike information criterion, findings supports that the twin deficits theory holds for India in the short run. Olanipekun (2012) in a study using bound test analysis of budget deficits and current account balance in Nigeria (1960-2008) discovered that there is a bi-directional relationship between budget deficit and current account balance. The study also supports the twin deficits hypothesis which asserts that an increase in budget deficit will cause similar increase in the current account deficit. However, the methodology adopted in the study was ordinary least squares with various diagnostic tests procedures like cointegration, granger causality and ECM.

However, the study by Egwaikhide (1997) looked at the effect of budget deficits on current account balance for twenty (20) years, that is 1973-1993 while the study of Olanipekun (2012) expanded the period of study forward and backward (1960 - 2008) using the bound testing analysis. This current work deems it necessary to re-consider the time frame of the study (1970-2014) and adopt a co integration and error correction mechanism to analyze the relationship. First, the choice of the period is to capture the different policy regimes implemented by the federal government. Second, the long period is to allow for a better degree of freedom.

METHODOLOGY

Model Specification and Data Sources

In this study, the model is based on the augmented approach to budget and balance of payments (or monetary approach to budget and balance of payment) with some modifications. According to Ahmed (2004), Tahir et al. (2007) and Olanipekun (2012), the relationship between budget deficit and current account balance is stated thus:

$$CGDP = f(BGDP, IGDP, PGDP) \quad - \quad - \quad - \quad - \quad - \quad (1)$$

Where;

CGDP is current account balance

BGDP is budget deficit

IGDP is investment

PGDP is private savings

However, this study is built on their modeling with some modifications which are central to the objectives of the study. Hence, the model for this study is specified as:

$$CGPP = f(BD, EXC, INF, FPI) \quad - \quad -- \quad - \quad - \quad - \quad (2)$$

$$CGDP = G_0 + G_1 BD + G_2 EXC + G_3 INF + G_4 FPI + U \quad - \quad (3)$$

$G_1, G_2, G_4 > 0$ and $G_3 < 0$

Transforming equations 3 to the natural logarithm we obtain:

$$\text{Log CGDP} = G_0 + G_1 \log \text{BD} + G_2 \text{EXC} + G_3 \text{INF} + G_4 \log \text{FPI} + U$$

Where;

G_0 – is the regression constant parameter

$G_1 - G_4$ are the regression coefficient of the independent variables (ie slope parameters)

CGDP = current account balance

BD = budget deficit

EXC = exchange rate

INF = inflation

FPI = foreign private investment

U = is the error term

The use of the log linear method improves the validity of the estimates and conclusion based on them. Ekpo (1997), Friends and Puckett (1964), Boyd and SchonFeld (1997), all agreed that the use of the log linear equations aims at reducing, if not completely removing the heteroscedasticity errors, which may result from unsealed both sides of the equations.

Estimation Techniques

An econometric technique is used to carry out an empirical estimation of the model for this study. Therefore, the technique involves the use of unit root test, co-integration test and error correction mechanism. These procedures will ensure our estimates are not spurious.

Empirical Results and Discussion of Findings

The analysis of any time series data commences with a test for unit root to determine whether the series are stationary or not stationary, after which we test for co-integration and error correction mechanism. The results are presented below:

Unit Root Test

Variables	ADF with intercept	Decision
CGDP	7.708432	I(0)
BD	-6.291149	I(1)
EXCH	-5.778990	I(1)
INF	-3.237338	I(0)
FPI	-12.02007	I(1)
Critical values at		
1% = -3.654730 (*)		
5% = 2.957110 (**)		
10% = -2.617434 (***)		

Source: Author's computation

From the results above CGDP and INF were stationary at levels while BD, EXCH and FPI were stationary at first difference and at 1%, 5% and 10% level of significance. The stationarity of the variables means that our result estimates are not spurious.

Co-Integration Result

Unrestricted cointegration Rank Test (Trace)

Prob ***	0.05 Critical value	Trace statistic	Eigenvalue	Hypothesized No. of CE(s)
0.0000	69.81889	127.1066	0.782520	None*
0.0003	47.85613	67.60633	0.611160	At most 1*
0.0385	29.79707	30.76742	0.331169	At most 2*
0.0576	15.49471	15.08067	0.296856	At most 3
0.2461	3.841466	1.345135	0.033903	At most 4
Trace test indicates 3 cointegrating eqn(s) at the 0.05 level *denotes rejection of the hypothesis at the 0.05 level **MacKinnon – Haug-Michelis (1999) p-values Unrestricted cointegration Rank Test (Maximum Eigenvalue)				

Prob ***	0.05 Critical value	Max-Eigen Statistic	Eigenvalue	Hypothesized No. of CE(s)
0.0000	33.87687	59.50023	0.782520	None*
0.0025	27.58434	36.83891	0.611160	At most 1*
0.2437	21.13162	15.68675	0.331169	At most 2
0.0605	14.26460	13.73554	0.296856	At most 3
0.2461	3.811466	1.345135	0.033903	At most 4
Max-eigenvalue test indicates 2 cointegrating eqn(s) at the 0.05 level *denotes rejection of the hypothesis at the 0.05 level **MacKinnon-Haug-Michelis (1999) p-values				

Source: Author's computation

The result shows that we have three co-integrating equations according to the trace statistics. This is because their trace statistics values of 127.106, 67.606 and 30.767 are greater than their critical values of 69.818, 47.856 and 29.797 at 5% level respectively. However, the Max Eigen statistics reveals that there are two co integrating equations. This is due to the fact that their max-Eigen statistics value of 59.50023 and 36.83891 is greater than their critical values of 33.87681 and 27.58434 at 5% level of significance. This therefore means that co integration exists in our estimates or say there is a long run relationship among the variables in our model.

Error Correction Model**Over parameterized Result**

Prob	t-statistic	Std. Error	Coefficient	Variable
0.4541	0.767287	605143.6	464318.9	C
0.3075	1.754174	4.936935	5.204388	BD
0.9105	-0.114194	4.820280	-0.550446	BD(-1)
0.9903	2.012359	23807.12	294.2436	EXCH(-1)
0.4642	0.749846	19491.23	1461.41	EXCH (-1)
0.0891	1.810263	19.38937	35.09987	FPI
0.3450	-0.973090	18350.49	-17856.68	INF
0.8868	-0.144584	15580.07	-2252.630	INF(-1)
0.7078	-01.981624	16.34032	-6235852	ECM
957849.5 Mean dependent var			0.676991R-Squared	
1525935 S.D dependent var			0.515487 Adjusted R-squared	
30.86322 Akaike info criterion			1062157.S.E. of regression	
31.30201 Schwarz criterion			1.81E + 13 Sum Squared resid	
30.98492 Hannan-Quinn criter			-376.7902 Log likelihood	
1.310791 Durbin-Watson stat			4.191783 F-statistic	
			0.007128 Prob (F-statistic)	

Source: Author's computation**Parsimonious Result**

Prob	t-statistic	Std. Error	Coefficient	Variable
0.1613	1.454701	367379.8	534427.6	C
0.0277	2.374951	2.932315	6.964103	BD
0.0277	2.373791	12.92961	30.69220	FPI
0.1717	-1.417550	10099.93	-14317.16	INF
0.0036	3.296095	5748.032	18946.06	EXCH
0.0060	-3.072826	8.166583	-0.409448	ECM
9210943.3 Mean dependent var			0.774810R – squared	
1506806 S. D dependent var			0.718512 Adjusted R-Squared	
30.22039 Akaike info criterion			799442.4S.E of regression	
30.51072 Schwarz criterion			1.28E + 13 Sum squared resid	
30.30400 Hannan-Quinn criter			-386.8651Log likelihood	
1.378770 Durbin-Watson Stat			13.76275F-Statistic	
			0.000007Prob(F-statistic)	

Source: Author's computation

From the error correction model of our parsimonious result, we found that all the variables conform to their a priori criteria. Therefore a 5% increase in BD FPI and EXCH will also lead to a corresponding increase of about 696.4%, 3069.2% and 1,894,606% increases in current account of Nigeria while an increase in INF will stimulate a reduction of 143,716% in the current account balance in Nigeria. More so, all the variables are statistically significant at 5% level of significance except INF. They are significant because their calculated t-values are greater than their tabulated t-value while that of INF is vice versa.

The F-statistic shows that our model has a good fit and can be relied upon in predicting the future behavior of current account balance of our balance of payments.

The adjusted R-square reveal that 71.85% of the total variations in current account balance is explained by variables used in this study leaving the remaining 28.15% for variables not considered in the model. The Durbin – Watson statistics of 1.37877 fall under the inconclusive region, hence, we cannot state categorically whether auto correlation exists in our model estimates or not. The ECM conforms to its a priori expectation and is statistically significant. The estimates depicts that the speed of adjustment is slow at 41%. This means that it will take about 41% for the short run deviation to be corrected in the long run.

CONCLUSION AND POLICY RECOMMENDATIONS

This study which seeks to investigate empirically the effect of budget deficit on the current account balance of our BOP had revealed a wonderful results, this is because the government at the moment is considering the possibility of reducing the level of deficit in her budget. The stationarity property of the variables was tested using the unit root test, Johansen co integration test and error correction mechanism were conducted on the variables.

From the results, we discovered that budget deficit, foreign private investments and exchange rate stimulate positive and significant effects on our current account balances, whereas inflation pose a serious danger as a result of the level of reduction it may cause on the current account balance. Arising from the outcome of our estimated results, it therefore means that any policy that will favour our current account balance must of necessity consider these three variables to have a positive effect in Nigeria. It therefore follows that:

- i. The Ministry of finance and the Central Bank of Nigeria must be cautious in the level of deficits the country incurred. This is because the high level of inflation is indirectly related to the level of our budget deficits.
- ii. The government should make sure that appropriate mechanism is put in place to maintain the existing level of inflation if reducing it is impossible. This will ensure that our current account balance is not seriously affected in the near future.
- iii. An enabling environment must be created to attract foreign private investment into Nigeria. This is with the view of boosting the current account balance as a means of stabilizing the economy both internally and externally.

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